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LANDOWNER PROFILE

Conservation Planning Leads to a Surprise & to Happy Cows, Happy Regulators & a Happy Dairyman

> ***"Sometimes I get a random text saying '12 tons to the acre, all day long' [of clover/grass mix], and I know Mike's harvesting these fields."***
>
> ***— Kristin Jean, NRCS engineer***

If you've seen the popular advertisements you know California is home to happy cows. In the Central Valley, where nitrates are a concern, dairy farmers like **Mike Correia** are challenged to keep water quality regulators happy as well. In pursuit of all this happiness, Correia made a visit to his local USDA Natural Resources Conservation Service office to develop a Comprehensive Nutrient Management Plan (CNMP). The CNMP would be a blueprint for managing manure nutrients to fertilize the crops while preventing any excess nutrients from getting into surface or groundwater. The CNMP also set the stage for the technical and financial assistance Mike hoped to secure from NRCS.

This formerly worn down field was transformed with the help of the nutrient management plan that specified the correct amount and application of manure nutrients. Here, Correia holds a clover plant with an 18-inch root.

Balancing the nutrients from 328 dairy cows and 100 cow/calf pairs on his 113-acre land base was going to be tricky, but Correia was pretty sure he could handle it by separating the manure into solids and liquids and shipping the solids off the property. Mike was luckier than most. He had a neighbor who was willing to take the solids.

At the NRCS office Mike worked with the NRCS California dairy team — **Kristin Jean**, NRCS engineer, and **Kabir Zahangir**, agronomist. They agreed to help Correia design a system to separate the manure solids (for delivery to his neighbor) while mixing, pumping and piping a diluted solution of liquid manure to his four pastures. Kristin also suggested adding a tailwater return system to recycle water through the fields. Correia agreed.

All three of these dairy experts felt good about the plan. But the CNMP process requires a survey of the dairy and a review of the agronomic and engineering options before a single option is selected for funding and implementation.

Key Components in Mike Correia's CNMP*

Infrastructure:

- Agitator
- 3 mixing boxes with backflow prevention valves
- Flow meter (to confirm right dilution and delivery of nutrient water)
- 5,200 ft. of pipe and return lines
- 2 concrete slabs (prevent seepage from stockpiled manure)
- Tailwater reservoir
- Pump

*The CNMP and some of the components called for in the plan were partially funded through the Environmental Quality Incentives Program (EQIP), a Farm Bill conservation program administered by NRCS.

Kristin and Kabir dutifully put pen to paper and chugged some numbers to comply with procedures. "Mike had a grand plan that made sense to Kabir and I, so we felt we were slowing the wheels of progress by examining all the data to create a CNMP," said Kristin, "but our policy is to plan before building the system and so we complied," said Kristin.

Dairyman Mike Correia and NRCS engineer Kristin Jean.

The survey of the farm revealed one 12-year old pasture of ryegrass/orchard grass/clover that was doing especially well — in fact, Correia had agreed to let that pasture grow ungrazed (by his grandfather's prized beef cattle) so its output could be cut and measured. As it turned out this was the one field on the dairy that was getting a well-balanced mix of water and manure. When the data were crunched and Kristin and Kabir's calculations were complete, a series of unexpected outcomes took everyone by surprise.

First, the lush pasture fueled with manure nutrients using the 4 Rs of good agronomy (right place, right time, right rate and right form) was yielding a spectacular 30-36 tons per acre per year (at least 3 cuttings at 10-12 tons/acre). Second, the phenomenal success of the field could potentially be replicated elsewhere on the farm using the new mixing, piping, and recirculating system to deliver a controlled nutrient mix to the other fields.

Third, given the high production yield in the pasture, Correia could use all those manure solids he had planned on giving away. He would need every drop of nitrogen in his cows' manure (or "brown gold" as Kristin calls it) to handle the nutrient needs of his pastures. This improved his manure storage situation as well. Fourth, the additional feed Correia could grow from properly mixing and using his manure was calculated to be worth at least $90,000 a year!

Finally, the expensive separator ($100,000 equipment) everyone "knew" was the solution to the problem was unnecessary. Instead agitators and pumps could mix and deliver the nutrients at roughly a third the cost of the pricy and often fussy separator — enabling Mike to use the solids he believed needed to be hauled away.

Correia and the NRCS team have now implemented most of the system and the formerly weedy fields with bare patches have been transformed into lush and productive grass for the farm's prize beef cattle. "Everyone was pretty blown away," said Correia. "We've seen firsthand what manure water can do for the grass." He has since added another 100 cow/calf pair to the 12-year old pastures and converted two of the better fields to high yielding corn/oat rotations that will be able to further use his solid manure stockpile.

Everyone agrees they were pleasantly surprised by the value the CNMP brought to the final outcome. "This one made me really happy, " said Kristin. "I've never had a CNMP bring to light so many opportunities for profit." For the dairy, protecting water and complying with regulations was part of the CNMP's value — but it also led to Correia saving $90,000 on equipment and gaining almost $100,000/year in feed.

And that added a dairy farmer to the list of happy occupants on the premises.

"The price of fertilizer is outrageous, and Mike has free fertilizer right here," says Kristin Jean, pointing to Mike's Holstein dairy cows.